ing receiving module, a CSI measuring and reporting module, a scheduling signaling receiving module and a downlink data receiving module.

[0137] The configuration signaling receiving module is configured to receive configuration signaling for CSI-RS sent by a base station. The CSI measuring and reporting module is configured to measure and report CSI according to the configuration signaling for CSI-RS. The scheduling signaling receiving module is configured to receive scheduling signaling sent by the base station. The downlink data receiving module is configured to receive downlink data according to the scheduling signaling.

[0138] In an example, configuration information of a CSI process in the configuration signaling received by the configuration signaling receiving module may include configuration information of at least two NZP CSI-RS resources. The CSI measuring and reporting module may receive NZP CSI-RS signals according to configuration information of all NZP CSI-RS resources of the CSI process, and combine measurement results of all NZP CSI-RS signals received in a CSI process to obtain the CSI information.

[0139] The scheduling signaling received by the scheduling signaling receiving module may include information of DMRS ports allocated to the UE, the number of data transmission layers and the number of RE collections actually occupied by DMRS denoted as N_{DMRS}. The downlink data receiving module may receive DMRS signals according to the DMRS ports allocated and the number of data transmission layers in the scheduling signaling. DMRS **7-10** are used for supporting MU-MIMO transmission of DMRS signals. When N_{DMRS} indicates DMRS signals are only transmitted in the RE collection of port **7**, the downlink data receiving module may receive PDSCH on the RE collection of port **9**.

[0140] Alternatively, the scheduling signaling received by the scheduling signaling receiving module includes information of DMRS ports allocated to the UE and the number of data transmission layers. The length of a time-expanded Walsh code is added to support MU-MIMO transmission. DMRS ports allocated to the UE are DMRS ports that have the best orthogonality in all of DMRS ports that support MU-MIMO. Alternatively, DMRS ports that have the best orthogonality in all of DMRS ports that support MU-MIMO are allocated to different UEs. In an example, the scheduling signaling may also include the length L_{OCC} of the time-expanded code corresponding to the DMRS port allocated to the UE.

[0141] Certain aspects of the present disclosure may also be embodied as computer readable code on a non-transitory computer readable recording medium. A non-transitory computer readable recording medium is any data storage device that can store data, which can be thereafter read by a computer system. Examples of the non-transitory computer readable recording medium include read only memory (ROM), random access memory (RAM), CD-ROMs, magnetic tapes, floppy disks, optical data storage devices, and carrier waves (such as data transmission through the Internet). The non-transitory computer readable recording medium can also be distributed over network coupled computer systems so that the computer readable code is stored and executed in a distributed fashion. In addition, functional programs, code, and code segments for accomplishing the present disclosure can be easily construed by programmers skilled in the art to which the present disclosure pertains.

[0142] It can be appreciated that a method and apparatus according to an embodiment of the present disclosure may be implemented by hardware, software and/or a combination thereof. The software may be stored in a non-volatile storage, for example, an erasable or re-writable ROM, a memory, for example, a RAM, a memory chip, a memory device, or a memory integrated circuit (IC), or an optically or magnetically recordable non-transitory machine-readable (e.g., computer-readable), storage medium (e.g., a compact disk (CD), a digital versatile disk (DVD), a magnetic disk, a magnetic tape, and/or the like). A method and apparatus according to an embodiment of the present disclosure may be implemented by a computer or a mobile terminal that includes a controller and a memory, and the memory may be an example of a non-transitory machine-readable (e.g., computer-readable), storage medium suitable to store a program or programs including instructions for implementing various embodiments of the present disclosure.

[0143] The present disclosure may include a program including code for implementing the apparatus and method as defined by the appended claims, and a non-transitory machine-readable (e.g., computer-readable), storage medium storing the program. The program may be electronically transferred via any media, such as communication signals, which are transmitted through wired and/or wireless connections, and the present disclosure may include their equivalents.

[0144] An apparatus according to an embodiment of the present disclosure may receive the program from a program providing device which is connected to the apparatus via a wire or a wireless and store the program. The program providing device may include a memory for storing instructions which instruct to perform a content protect method which has been already installed, information necessary for the content protect method, and the like, a communication unit for performing a wired or a wireless communication with a graphic processing device, and a controller for transmitting a related program to a transmitting/receiving device based on a request of the graphic processing device or automatically transmitting the related program to the transmitting/receiving device.

[0145] While the present disclosure has been shown and described with reference to various embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the present disclosure as defined by the appended claims and their equivalents.

1-15. (canceled)

16. A method of a user equipment (UE), the method comprising:

receiving configuration information related to a channel state information (CSI) process; and

measuring a channel state based on the configuration information,

wherein the CSI process is associated with at least two non-zero power (NZP) channel state information reference signal (CSI-RS) resources.

17. The method of claim **16**, further comprising:

measuring interference based on one zero power (ZP) CSI interference measurement (CSI-IM) resource.

18. The method of claim **16**, further comprising:

receiving scheduling information from the base station; and